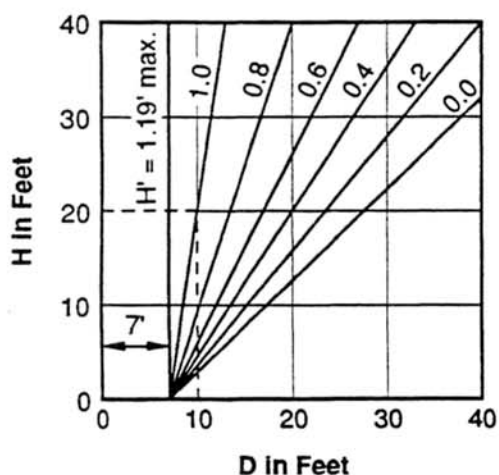


## SURCHARGE FROM RAILROAD LOADING

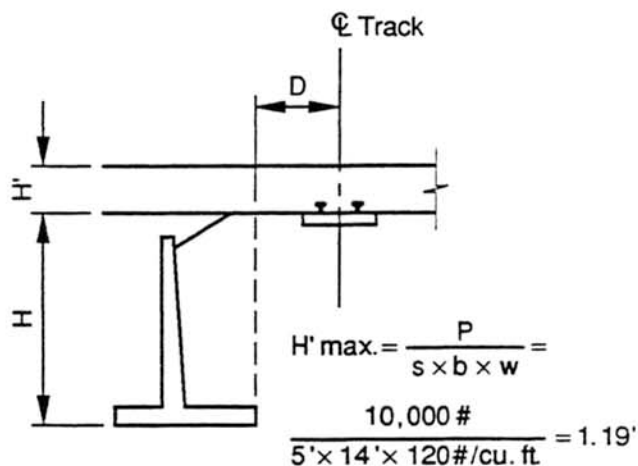
The following information is offered to clarify the interpretation of AREA Specifications in regard to LL surcharge.

It is necessary to consider the effect of only one track in computing the LL surcharge. The exceptional case of tracks spaced closer than 14' can be generally ignored since the increase in surcharge is minor.

All values on this sheet are based on E-10 loading. For other loadings use the appropriate multiplication factor, such as 6.0 for E-60, etc.



**L.L. SURCHARGE IN FEET FOR E-10 LOADING**  
(For E-72 loading multiply  $H'$  by 7.2)



$H'$  = live load surcharge  
 $P$  = axle load in lbs.  
 $s$  = axle spacing in ft.  
 $b$  = transverse distribution of axle load in ft.  
 $w$  = unit weight of backfill in lbs.

Example: Height of wall =  $H$  = 20 feet. Distance from centerline track to nearest edge of footing =  $D$  = 10 feet. Enter graph at  $D10$  and at  $H20$ . Where the two lines intersect, read the amount of surcharge, or  $H' = 1.0'$ .

*Philip C Warriner*  
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Supersedes Memo to Designers 17-135 dated March 1980.